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Using Abdominal Massage to Reduce Gastric Residual Volume Among Critically Ill Patients by Nurses in a Tertiary Health Institution in Jos Metropolis, Plateau State

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Abstract
One of the major problems of hospitalized critically ill patients is nutrition. Meeting the daily nutritional requirements to prevent malnutrition and problem related to it. Early enteral feeding is recommended as first line of nutrition therapy for critically ill patients, although enteral feeding is often complicated with intolerance and aspiration as a result of high gastric residual volume. Abdominal massage is a technique used in improving digestive function. The aim of this study was to determine the knowledge and practice of abdominal massage as a means of reducing gastric residual volume (GRV) in critically ill patients among nurses and doctors. This was a descriptive, cross-sectional and non-experimental study. This study sample comprised 73 nurses in the units where critically ill patients are kept such as Intensive Care Unit (ICU), High Dependency Unit (HDU), Special Care Baby Unit (SCBU), and Neuro-Surgery department of Jos University Teaching Hospital, Jos. Questionnaire was the instrument used to elicit responses from the respondents. The study was carried out within the ambit of the range of ethics considerations. Convenience sampling technique was adopted in gaining access to the participants. Findings from this study reveal the importance of the use of abdominal massage, and the non-practice of the method in addressing abdominal problems, even though, awareness of it was high. Reasons attributable to use of other means such as aspiration of excess GRV with NG tube were provided. There was poor knowledge of the signs of high GRV that would necessitate abdominal massage.
Keywords: Abdominal massage, critically ill patients, nurses, gastric residual volume,
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INTRODUCTION

The gastric residual volume of critically ill patients requires monitoring to avoid the risk of gastrointestinal (GI) dysfunctions such as decreased peristalsis, decrease bowel transit period. Pulmonary aspiration, regurgitation and ventilator-associated pneumonia could emanate from these dysfunctions. Early enteral nutrition is recommended as first line of nutrition therapy in critically ill patients, since it provides both nutritional and non-nutritional benefits. (Gunner, Thomas & Daren, 2017). Notwithstanding, enteral nutrition is inclined toward compromised gastro-intestinal functions. The use of gastric residual volume (GRV) in detecting GI dysfunction is considered a substitute means of determining limit in the course of enteral nutrition periodically, therefore, clinicians use GRV monitoring to discern reduced gastric emptying, and in making early intervention in order to minimize the concomitant risks of enteral feeding among patients (Gunner, Thomas & Daren, 2017). Abdominal massage is an ancient remedy used in treating issues pertaining to the abdominal areas, massage is extremely beneficial to the body and therapeutic to the mind, massaging the leg after a run helps lactic acid move to reduce soreness and massaging a stiff neck and shoulder helps reduce tension. Massaging the abdomen improve digestion and relieve stress which improve GI function (Edward, 2013). Abdominal massage is a gentle, non-invasive treatment that may have relaxing and healing effect for some people, and are used in the treatment of wide variety of health conditions especially those related to the stomach such as indigestion and bloating (Daniel, 2018). Massage therapy can stimulate the parasympathetic activity and induce a more effective gastro-intestinal function by increasing peristalsis, decrease abdominal distension, increase bowel transit time, reduce gastric gas volume, increase frequency of defecation and decrease the frequency of vomiting. Thus, abdominal massage is intended to improve digestive system function (Mahin, et al., 2014). Stomach massage is not only helpful in relieving stress but also improve oxygen circulation through blood in necessary area and body fluid which ensures the body secret enough enzymes for clearing bowel and prevent constipation as well as other benefits such as reducing irregular menstrual pain and reboot internal organs (Pramod, 2017).

Statement of the problem

The importance of abdominal massage in relieving abdominal problems, especially among the critically ill patients has been established by a number of studies carried out in that direction. It is equally documented that this practice

was the dominant intervention in American health care delivery context in the 60s before it became unpopular as a result of other advanced competing alternatives (Westman & Blaisdell, 2016). Its revival in the contemporary times is an evidence of its time-honored relevance. In Nigeria, there is a paucity of literature as to show whether this abdominal massage is being practiced, and also, whether nurses have the knowledge and understanding of its inherent techniques. This study was predicated on this gap which the researchers were inclined to address.

Objectives of the study

1. Assess the knowledge of abdominal massage among nurses in Jos University Teaching Hospital.
2. Determine the level of practice of abdominal massage among nurses in reducing gastric residual volume in Jos University Teaching Hospital
3. Determine the factors hindering the effective practice of abdominal massage among nurses in Jos University Teaching Hospital

MATERIALS AND METHODS

This study was a cross sectional, descriptive research and non-experimental one aimed at addressing the objectives raised. The study setting for this study was Jos University Teaching Hospital situated in the Jos North Local Government Area of Plateau State. Jos city has a population of about 900,000 (NPC, 2006). The city is about 1,238 meters (4,062 feet) above the sea level in terms of elevation. JUTH is a tertiary health institution primarily meant for teaching and research. The hospital has various departments that coordinately function toward achieving its primary aim. Four clinical units where critically ill patients are admitted were selected for this study. These units were Intensive Care Unit (ICU), High Dependency Unit (HDU), Special Care Baby Unit (SCBU) and Neuro-Surgery Unit. The population of this study consisted nurses who were working in those units and, directly involved with critically ill patients. Selecting a sample randomly was a bit challenging as some of the practitioners were on either annual leave or a study leave thereby making convenience sampling technique a better alternative. The instrument for data collection was questionnaire consisting both socio-demographic profile, and items on the different segments of practice of abdominal massage. A total of 77 copies of questionnaire were distributed to the respondents and 73 were retrieved accounting for 94.8% of the response rate of the study population.

RESULTS

The data collected for the study were presented in tables below.

Table 1: Socio demographic data

Item	Option	F.	%
Age	20-29 years	18	24.7
	30-39	25	34.2
	40-49	10	13.7
	50 and above	20	27.4
Total		**73**	**100**
Sex	Male	33	45.2
	Female	40	54.8
Total		**73**	**100**
Religion	Christianity	65	89
	Muslim	8	11
	Traditional	0	0
	Others (specify)	0	0
Total		**73**	**100**
Marital status	Single	23	31.5
	Married	48	65.8
	Divorced	0	0
	Separate	2	2.7
	Widow	0	0
Total		**73**	**100**
Ethnic group	Ngas	12	16.4
	Taroh	2	2.7
	Berom	8	11
	Igbo	3	4.1
	Hausa	6	8.2
	Yoruba	15	20.5
	Others	27	37
Total		**73**	**100**

Item	Option	F.	%
Occupational experience (years)	0-4	19	26
	5-9	20	27.4
	10-14	8	11
	15-19	6	8.2
	20 and above	20	27.4
Total		**73**	**100**

Table 1 shows that, majority, 25 (32.2%) of the respondents were within the age group 30-49 years, followed by 50 years and above 20 (27.4%), 20-29 years were 18 (24.7%) and 40-49 years were 10 (13.7%). More than half of the respondents were females 40 (54.8%) while males were 33 (45.2%). Religious distribution shows that 65 (89%) are Christians while Muslim respondents were 8 (11%). Marital distribution indicates that 48 (65.8%) of the respondents were married: Single 23 (31.5%), and 2 (2.7) were separated. Respondents from Ngas are 12 (16.4%), Taroh, 2 (2.7%), Berom 8 (11%), Igbo (3%), Hausa 6 (8.2%), Yoruba 15 (20.5%) while respondents from other ethnic group were 27 (37%). Occupational experience distribution shows that 0-4 years were 19 (26%), 5-9 years, 20 (27.4%), 10-14 years, 8 (11%), 15-19 years, 6 (8.2%) while 20 years and above were 20 (27.4%).

Table 2: Knowledge of abdominal massage

	Item	Option	F	%
1.	Have you heard of abdominal massage?	Yes	38	52.1
		No	35	47.9
	Total		**73**	**100**
2.	If yes (in 8) what is your source of knowledge?	Lecture	7	9.6
		Medical books	11	15.1
		Seminar/ workshop	4	5.5
		Journal	8	11
		Clinical practice	17	23.3
		Others	4	5.5
	Total		**73**	**100**
3.	What volume of gastric residual volume that would necessitate performing abdominal massage?	<100 mls	4	5.5
		100 – 200 mls	4	5.5
		201 – 400 mls	6	8.2
		401-500mls	8	11
		>500 mls	8	11
		No idea	43	58.9
	Total		**73**	**100**
4.	What is the sign(s) of high GRV that would require abdominal massage?	Vomiting	17	23.3
		Regurgitation	19	76.7
		Aspiration	20	27.4
		Reduce frequency of defecation	15	20.5
		No idea	37	49.3
		Others	0	0
	Total		**73**	**100**
5	What patients are contra-indicated for abdominal massage?	Pregnant women	40	54.8
		Children	2	2.7
		Critically ill patients	10	13.7
		Intestinal obstruction	22	30.1
		No idea	21	28.8
		Others	0	0
	Total		**73**	**100**

Table 2 reveals that a little above half of the respondents 38 (52.1%) were aware of abdominal massage, 35 (47.9%) had not heard of abdominal massage. Major sources of information of those that had heard of abdominal massage were clinical practice 17 (23.3%), medical and nursing books 11 (15.1%), lecture 7 (9.6%), journals 8 (11%), and 4 (5.5%) were from other sources.

Majority of the respondents 43 (58.9%) had no idea on the volume of GRV that would necessitate abdominal massage, 4 (5.5%) each indicated less than 100mls and 100-200mls, 6 (8.2%) 201-400mls, 8 (11%) > 500mls. Most, 37 (49.3%) of the respondents had no idea of the signs of high GRV that would necessitate abdominal massage, 20 (27.4%) indicated aspiration, regurgitation 19 (76.7%), vomiting 17 (23.3%), and reduced frequency of defecation 15 (20.5%).

Majority 40 (54.8%) claimed that contraindications for abdominal massage were pregnant women, intestinal obstruction, 22 (30.1%) critically ill, 10 (13.7%), children, 2 (2.7%) while 21 (28.8%) of the respondents had no

idea.

Table 3: Practice of abdominal massage

	Item	Option	F	%
1.	Do you practice abdominal massage?	Yes	8	10.9
		No	65	89
	Total		73	100
2.	If no, why?			
	a. My institution does not approve the use of abdominal massage in reducing gastric residual volume.	Yes	22	30.1
		No	51	69.9
	Total5		73	100
	b. We use other means to reduce gastric residual volume	Yes	53	72.6
		No	20	27.4
	Total		73	100
	c. I don't know how to carry out abdominal massage	Yes	35	47.9
		No	38	52.1
	Total		73	100
	d. Abdominal massage is not practiced in Nigeria	Yes	16	21.9
		No	57	78.1
	Total		73	100
	e. Abdominal massage is not effective in reducing gastric residual volume in critically ill patient	Yes	12	16.4
		No	61	83.6
	Total		73	100
	f. Others	Yes	4	5.5
		No	69	94.5
	Total		73	100
3.	Does abdominal massage reduce gastric residual volume	Yes	51	69.9
		No	22	30.1
	Total		73	100
4.	What is your duration of abdominal massage?			
	a. I do not carry out abdominal massage	Yes	50	68.5
		No	23	31.5
	Total		73	100
	b. Less than 5 minutes	Yes	10	13.7
		No	63	86.3
	Total		**73**	**100**
	c.5-10 minutes	Yes	4	5.5
		No	69	94.5
	Total		**73**	**100**
	d. 15 minutes	Yes	4	5.5
		No	69	94.5
	Total		**73**	**100**
	e. More than 15 minutes	Yes	4	5.5
		No	69	94.5
	Total		**73**	**100**
5.	Do you measure gastric residual volume each time before carrying out abdominal massage?	Yes	10	13.7
		No	63	86.3
	Total		**73**	**100**

Table 3 reveals most, 65 (89%) of the respondents do not practice abdominal massage, 8 (11%) of the respondents claimed they practiced abdominal massage. The reasons given for not practicing abdominal massage were: the use other means to reduced GRV 53 (72.6%), no approval from institution, 22 (30.1%), the health workers do not know how to carry out abdominal massage 35 (47.9%), it is not practiced in Nigeria 16 (21.9%), ineffectiveness of abdominal massage 12 (16.4%) while 4 (5.5%) cited other reasons. Majority, 51 (69.9%) of the respondents indicated that abdominal massage reduces gastric residual volume, 22 (30.1%) respondents differed. Fifty (68.5%) of the respondents do not carry out abdominal massage process, while out of those who practice it, the duration of the session was less than 5 minutes as indicated by 10 (13.7) respondents, 5-10 minutes, 4 (5.5%)

respondents, 15 minutes, 4 (5.5%) respondents and > 15minutes, 4 (5.5%) respondents. A substantial number, 63 (86.3%) claimed that do not measure GRV before performing abdominal massage because it was not a usual practice while 10 (13.7%) asserted they measure GRV before abdominal massage.

Table 4: Practice of abdominal massage (b)

Item	Option	F	%
What do you observe during abdominal massage?			
a. I start my abdominal massage from the right iliac region to relieve congestions	Yes	4	5.3
	No	69	94.5
Total		**73**	**100**
b. I use the tip of my fingers to move in deeper	Yes	6	8.2
	No	67	91.8
Total		**73**	**100**
c. I move the patient legs towards the belly	Yes	8	11
	No	65	65
Total		**73**	**100**
d. I use fingertip to massage the abdomen, moving inward and downward	Yes	0	0
	No	73	100
Total		**73**	**100**
e. I go deeper with the finger tip	Yes	10	13.7
	No	63	86.3
Total		**73**	**100**
f. With one hand over the other, I repeat the motion anti-clockwise in smaller cycles	Yes	0	0
	No	73	100
Total		**73**	**100**
g. I repeat the stroking movement for 10-15 minutes	Yes	6	8.2
	No	67	91.8
Total		**73**	**100**
h. I apply gentle pressure on areas that feels tender	Yes	8	11
	No	65	89
Total		**73**	**100**

Data on procedure for abdominal massage shows that 4 (5.5%) start abdominal massage from the right iliac region to relieve congestions, 6 (8.2%) use the tip of their fingers to move in deeper, 8 (11%) move the patient legs towards the belly, 10 (13.7%) go deeper with the finger tip, 6 (8.2%) repeat the stroking movements for 10-15 minutes while 8 (11%) apply gentle pressure on areas that feel tender.

Table 5: Practice of abdominal massage (c)

	Item	Option	F	%
1.	Which preferable means do you use in reducing GRV?			
	a. Aspiration of excess GRV using NG tube	Yes	66	90.4
		No	7	9.6
	Total		**73**	**100**
	b. Pharmacological means	Yes	28	38.4
		No	45	61.6
	Total		**73**	**100**
	c. Abdominal massage	Yes	14	19.2
		No	59	80.8
	Total		**73**	**100**
	d. Others	Yes	6	8.2
		No	67	91.8
	Total		**73**	**100**
2.	Which patients are indicated for abdominal massage?			
	a. Critically ill patients	Yes	51	69.9
		No	22	30.1
	Total		**73**	**100**
	b. Constipation	Yes	37	50.7
		No	36	49.3
	Total		73	100
	c. Vomiting	Yes	20	27.4
		No	53	72.6
	Total		73	100
	d. Regurgitation	Yes	25	34.2
		No	48	65.8
	Total		73	100
	e. Others	Yes	3	4.1
		No	70	95.9
	Total		73	100
3.	How regular do you carry out abdominal massage?	Always	12	16.4
		Sometimes	6	8.2
		Rarely	2	2.7
		Never	53	72.6
	Total		**73**	**100**

Table 5 reveals that, 66 (90.4%) conceded that the most preferably means of reducing GRV were aspiration of excess GRV using NG tube, 28 (38.4%), pharmacological means, 14 (19.2%) abdominal massage, and 6 (8.2%) used other means. 51 (69.9) concurred that patients mostly indicated for abdominal massage the critically ill, 37 (50.7%) constipation, 25 (34.2%), 20 (27.4%) vomiting, 25 (34.5%) regurgitation, and 3 (4.1%) indicated others. Over two third, 53 (73.2%) claimed they have never carried out abdominal massage, 12 (16.4%) claimed they carry it out always, 6 (8.2%) sometimes, 2 (2.7%) rarely practiced abdominal massage.

Table 6: Factors influencing the practice of abdominal massage

	Item	Option	F	%
1.	Hospital policy which do not approve the use of abdominal massage	Yes	54	74
		No	19	26
	Total		**73**	**100**
2.	Poor research in abdominal massage as a means of reducing gastric residual	Yes	70	95.9
		No	30	4.1
	Total		**73**	**100**
3.	Experience level of health workers in abdominal massage	Yes	52	71.2
		No	21	28.8
	Total		**73**	**100**
4.	Abdominal massage is not within my training curriculum	Yes	36	49.3
		No	35	47.3
		Invalid	2	2.7
	Total		**73**	**100**
5.	Poor outcome of abdominal massage	Yes	30	41.1
		No	43	58.9
	Total		**73**	**100**
6.	Ethical issues	Yes	47	64.4
		No	26	35.6
	Total		**73**	**97.3**

Table 6 reveals the factors influencing the practice of abdominal massage as included: hospital policy, 54 (74%), experience level of health workers on abdominal massage 52 (71.2%), none inclusion on training curriculum 36 (49.3%), poor research on abdominal massage 70 (95.9%), poor outcome of abdominal massage 30 (41.1%) and ethical issues 47 (64.4%).

Table 7: Chi square analysis of hypothesis 1

Item	Cal value	Df	Critical value	P value
Knowledge and practice of abdominal massage among nurses	8.413	1	3.841	0.05

The chi-square analysis of the relationship between knowledge and practice among nurses shows that the result is highly significant.

DISCUSSION

Nurses have always had knowledge of abdominal massage as evidenced in this study. This was corroborated by Kathryn (2016) who revealed that nurses' possession of the knowledge of abdominal massage predated the contemporary times even though there was no enough evidence to show its approval in nursing practice. Findings of this study further show that the respondents do not practice abdominal massage as there were other means of effecting such. This is consistent with the evidence provided by Norma (2008), Venessa, (2018) which indicated that most nurses uses aspiration of excess GRV and drugs. The assertion by respondents that abdominal massage reduces gastric residual volume in critically ill patients is supported by Farzad (2018) in a controlled trial study in which it was revealed that abdominal massage reduces gastric residual volume in patients. Other studies like Mc Clurg (2016), Mannal et al (2010), Nurcal, et al (2012) conducted among adults, children, constipated patients and critically ill provide further evidence in support of reduced GRV after performing abdominal massage. Respondents in this study claimed that they use NG tube for the aspiration of excess gastric residual volume to reduce gastric residual volume. This finding aligns with Venessa et al., (2018) Norma (2008) whose studies show that practitioners make use of NG tube to reduce gastric residual volume. Respondents further indicated that critically ill patients have benefitted from abdominal massage just as those that suffer from constipation, vomiting or regurgitation are not left out in this use of abdominal massage. Findings of the studies by McClurg et al (2016), Farzad et al (2018), Nurcan, et al., (2012) further lend support to this outcome. Most of the respondents rarely perform abdominal massage this may be due to poor knowledge on abdominal massage procedure and poor research. This is supported by the findings by Westman and Blaisdell (2016) which emphasize that some nurses and hospitals have integrated abdominal massage into routine nursing practice however many hospitals have not yet. The findings on the factors affecting poor of abdominal massage align with the outcome of the study by Westman and Blaisdell (2016) which implicated poor research, hospital policy, funding, massage therapy training and tracking the effectiveness. The study also reveals that there was significant relationship between knowledge and practice of abdominal massage among nurses in reducing gastric residual volume. The assertion of Westman

and Blaisdell (2016) lends support to this finding as it emphasizes that massage therapy was once part of core nursing skills before it waned as a result of changes in nursing technology. The second hypothesis is not significant. This, following from the above scholars' assertion, could be linked to the fact that abdominal massaging did take a place of prominence in the medical knowledge.

CONCLUSION

The study attempted to determine the knowledge of abdominal massage and its practice among nurses in Jos University Teaching Hospital. The outcome of the study reveals the state of the art. Study limitations were well acknowledged. Ordinarily, this study should have been extended to primary and secondary health tiers in order to foster some form of cumulative knowledge.

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The article discusses the types of psychological reactions of the patient to the disease. The study is devoted to the analysis of psychological reactions to the disease in different age categories and their relationship to the disease.Â Melancholic: characterized by dejection of the disease, lack of confidence in recovery, in a possible improvement in the effect of treatment. Active depressive expressions up to suicidal thoughts. A pessimistic view of everything around, disbelief in the success of treatment even with favorable objective data. Caring for those patients. First medical aid in patients with asphyxia and acute respiratory failure. .â€¦ .â€¦ 52. Subject 4: The methods of the cardiovascular system examination.Â Alimentary Gastro-intestinal system (DIGESTIVE SYSTEM) Appetite, Saturability, Taste in a mouth, Thirst, Chewing (mastication), Salivation (sialism), Swallowing, Abdominal pain, Heartburn (pyrosis), Nausea, Vomiting, Abdominal swelling, Burning, itch, Stool (evacuation), Constipation, Diarrhoea, Feces: Liver. Benefits of Abdominal Massage To Critically Ill Patients. Abdominal massage plays a significant part in reducing abdominal massage. The abdomen is a critical part of the body as it houses many vital organs including most of the digestive system. The digestive system can develop weaknesses as a result of illness. Living a sedentary lifestyle and failing to exercise enough can also contribute to weakness in the abdomen.Â Abdominal massage can decrease gastric residual volumes (GRVs) and abdominal circumference over time in select population in the critical care unit. Research and standardization for abdominal massage practice might provide clinicians with some additional tools to improve gastrointestinal (GI) functions and feeding among the critically ill. Nursing: the layout and proper storage of drugs, journal of medical prescriptions, the assignment sheet medical nutrition, log transfer duty.Â 8. Linen of a patient to send to the disinfection chamber in a special bag. 9. On the title page of the medical records marked "P" in the upper right corner - head lice. 10. The room and everything that was in contact with patient, treated with Malathion.Â Change sheets in critically ILL. When changing the sheets of the patient gently push on the edge of the bed, the vacant part of the dirty sheets stacked along (like a bandage) and on the place spread a clean sheet. In cases where the patient forbidden to move, a dirty sheet rolled top and bottom half of the torso of the patient, simultaneously enclose a blank top sheet. 12. His health condition has been gradually declining. His current decline is due to hypothermia last week. Anamnesis reveals that the patient has worked in a mine in Lugansk region as a miner and electrician and was exposed to harmful factors. Determine complete clinical diagnosis in accordance with the clinical and functional and radiological classification of pneumoconiosis. Additional data on the clinic, sanitary-hygiene characteristics of work conditions, laboratory and instrumental examination are added to the task. Male, 50 years old. Harmful and dangerous factors of labor conditions: Dust,

Nursing: the layout and proper storage of drugs, journal of medical prescriptions, the assignment sheet medical nutrition, log transfer duty.Â 8. Linen of a patient to send to the disinfection chamber in a special bag. 9. On the title page of the medical records marked "P" in the upper right corner - head lice. 10. The room and everything that was in contact with patient, treated with Malathion.Â Change sheets in critically ILL. When changing the sheets of the patient gently push on the edge of the bed, the vacant part of the dirty sheets stacked along (like a bandage) and on the place spread a clean sheet. In cases where the patient forbidden to move, a dirty sheet rolled top and bottom half of the torso of the patient, simultaneously enclose a blank top sheet. 12. Patients with abdominal wall hernias account for a significant part of patients in general surgery. It is due to the increase of the number and level of surgical interventions [1, 2], the development of operative techniques, the success of anesthesiology and intensive care. Hernias subsequently develop in 7â€“24% of patients who underwent midline laparotomy [3â€“7], especially after complications and/or relaparotomies [8]. The techniques of open abdomen and planned abdomen sanitations also lead to the formation of problematic category of cases: patients after a number of surgeries, those with acut... Benefits of Abdominal Massage To Critically Ill Patients. Abdominal massage plays a significant part in reducing abdominal massage. The abdomen is a critical part of the body as it houses many vital organs including most of the digestive system. The digestive system can develop weaknesses as a result of illness. Living a sedentary lifestyle and failing to exercise enough can also contribute to weakness in the abdomen.Â Abdominal massage can decrease gastric residual volumes (GRVs) and abdominal circumference over time in select population in the critical care unit. Research and standardization for abdominal massage practice might provide clinicians with some additional tools to improve gastrointestinal (GI) functions and feeding among the critically ill. In health there is diurnal variation of the specific gravity; in morning, the most concentrated portion of the urine, it can be to 1.020-1.026. Assessment of the specific gravity of the urine is of great diagnostic significance, because these parameter gives information about concentrating ability of the kidneys. The specific gravity can also be depends on the volume of urine excreted (Tab. 2). Tab.Â second sleepless night with excruciating lower abdominal pain. The pain seemed to come in waves and was unrelieved by aspirin, tylenol, or lying or standing in any position. He had not experienced any similar pain before. Urinalysis revealed dark yellow, cloudy urine with no protein; 2-5 WBC/hpf, >100 RBC/hpf, no casts and occasional squamous epithelial cells.